OFFICE OF PUBLIC INSTRUCTION
PO BOX 202501
HELENA MT 59620-2501
www.opi.state.mt.us
(406) 444-3095
(888) 231-9393
(406) 444-0169 (TTY)

Linda McCulloch
Superintendent

Grade 4 Math Performance Level Descriptors

Advanced	**This level denotes superior performance.** Students at this level demonstrate a comprehensive and in-depth understanding of rigorous subject matter and provide sophisticated solutions to complex problems. • Student can recognize and understand geometric sequencing • Student can demonstrate ability to use complex problem-solving • Can use and apply strategies and procedures to solve algebraic problems
Proficient	**This level denotes solid academic performance for each benchmark. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.** Students at this level demonstrate a solid understanding of challenging subject matter and solve a wide variety of problems. • Student can add and subtract with several re-grouping steps • Student can recognize place value to one hundred thousandths place • Student can multiply three digit by one digit
Nearing Proficiency	**This level denotes that the student has partial mastery or prerequisite knowledge and skills fundamental for proficient work at each benchmark.** Students at this level demonstrate a partial understanding of subject matter and solve some simple problems. • Student can interpret simple data – i.e. bar graphs • Student can recognize, organized data • Student can add and subtract with limited re-grouping • Student can complete basic multiplication and division facts • Student can recognize place value to the thousandths • Student can recognize fact families • Student can measure to nearest unit; i.e. inches, centimeters • Student can identify and extend simple patterns
Novice	**This level denotes that the student is beginning to attain the prerequisite**

	knowledge and skills that are fundamental for work at each benchmark. Students at this level demonstrate a minimal understanding of subject matter and do not solve simple problems.

Grade 8 Math Performance Level Descriptors

Advanced	**This level denotes superior performance.** Students at this level demonstrate a comprehensive and in-depth understanding of rigorous subject matter and provide sophisticated solutions to complex problems. • Recognize & extend arithmetic & geometric patterns • Solve multi-step equations • Recognize 2-dimensional representations of 3-dimensional shapes • Solve equations with negative exponents • Know and apply Pythagorean Theorem • Simplify expressions with like terms • Able to filter extraneous information not needed to solve the problem • Solve problem & communicate strategy • Solve inequalities • Draw inferences; construct & evaluate based on data analysis
Proficient	**This level denotes solid academic performance for each benchmark. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.** Students at this level demonstrate a solid understanding of challenging subject matter and solve a wide variety of problems. • Know order of operations (+, -, *, ÷, ( ), exponents) • Calculate basic operations using all real numbers • Solve proportions • Identify and interpret graphs • Convert: fractions ↔ decimals; decimals ↔ percentages; percentages ↔ fractions • Use fractions in real world applications • Understand & manipulate geometric formulas • Understand difference between and be able to calculate mean, median & mode • Solve 2-step equations • Draw visual combinations (using trees, tables or another strategy) • Plot all real numbers on a number line • Given a formula, calculate perimeter, area & volume of geometric shapes • Know and be able to apply definitions of similar & congruent • Solve problems with 2 steps and extend • Recognize simple patterns • Attempts to communicate strategies • Recognize and use inequality symbols • Represent geometric figures on a coordinate plane/grid • Convert measurements within a system

Nearing Proficiency	**This level denotes that the student has partial mastery or prerequisite knowledge and skills fundamental for proficient work at each benchmark.** Students at this level demonstrate a partial understanding of subject matter and solve some simple problems. • Given a simple formula, perform variable replacement with a number • Solve 1-step equations with positive numbers • Know order of operations for addition, subtraction, multiplication, division & parentheses • Plot points on a coordinate plane • Be able to perform simple interpretations of basic types of graphs. • Recognize reflections & rotations • Calculate basic operations (addition, subtraction, multiplication, division) with whole numbers • Understand simple probability with independent outcomes (e.g., coin flips) • Plot integers on a number line
Novice	**This level denotes that the student is beginning to attain the prerequisite knowledge and skills that are fundamental for work at each benchmark.** Students at this level demonstrate a minimal understanding of subject matter and do not solve simple problems.

Grade 10 Math Performance Level Descriptors

Advanced	**This level denotes superior performance.** Students at this level demonstrate a comprehensive and in-depth understanding of rigorous subject matter and provide sophisticated solutions to complex problems. • Can analyze a problem to identify the real question • Can solve problems never encountered before • Can solve nontraditional presentations of a problem • Can convert between abstract and concrete • Can formulate a decision-making strategy
Proficient	**This level denotes solid academic performance for each benchmark. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.** Students at this level demonstrate a solid understanding of challenging subject matter and solve a wide variety of problems. • Solid math vocabulary including definitions and properties • Can consistently solve multi-step problems • Can translate and apply language descriptions to a variety of problems • Can translate between multiple representations of a problem or concept • Can convert written to symbolic
Nearing Proficiency	**This level denotes that the student has partial mastery or prerequisite knowledge and skills fundamental for proficient work at each benchmark.** Students at this level demonstrate a partial understanding of subject matter and solve some simple problems. • Recognizes and understands some concepts at basic level • Can be confused by context in questions • Has difficulty converting decimals/fractions • Can consistently solve single-step computations
Novice	**This level denotes that the student is beginning to attain the prerequisite knowledge and skills that are fundamental for work at each benchmark.** Students at this level demonstrate a minimal understanding of subject matter and do not solve simple problems.